

1003301-000175-SEQ Listing
SEQUENCE LISTING

<110> Hanson, Lars A.
Baltzer, Lars
Mattsbj Baltzer, Inger
Dolphin, Gunnar T.

<120> Peptides Based on the Sequence of Human Lactoferrin
and Their Use

<130> 003300 723

<140> US 09/743,107
<141> 2001 08 21

<150> PCT/SE99/01230
<151> 2000 09 29

<150> SE 9802441 7
<151> 1998 07 06

<150> SE 9802562 0
<151> 1998 07 17

<150> SE 9804614 7
<151> 1998 12 29

<160> 102

<170> PatentIn version 2.1

<210> 1
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<213> Artificial sequence

<220>
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<222> (1)
<223> ACETYLATION

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<221> PEPTIDE
<222> (1)
<223> Amino acid 1 is Xaa wherein Xaa = Glu or no amino acid.

<220>
<221> PEPTIDE
<222> (2)
<223> Amino acid 2 is Xaa wherein Xaa = Ala or no amino acid.

<220>
<221> PEPTIDE
<222> (5)
<223> Amino acid 5 is Xaa wherein Xaa = Cys or Ala.

<220>
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<222> (7)
<223> Amino acid 7 is Xaa wherein Xaa = Gln or Lys.

<220>
<221> PEPTIDE
<222> (11)
<223> Amino acid 11 is Xaa wherein Xaa = Asn or Asp.

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<220>
 <221> PEPTIDE
 <222> (17)..(25)
 <223> Amino acids 17 25 are Xaa wherein Xaa = Gly, Pro, Pro, Val, Ser, Cys, Ile, Lys, Arg

<220>
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 <222> (25)
 <223> AMIDATION

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to modification of the sequence consisting of aa 16 40 in human lactoferrin

<400> 1

Xaa Xaa Thr Lys Xaa Phe Xaa Trp Gln Arg Xaa Met Arg Lys Val Arg
 1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 20 25

<210> 2
 <211> 25
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<220>
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<400> 2

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

Gly Pro Pro Val Ser Cys Ile Lys Arg
 20 25

<210> 3
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<220>
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 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 16 40 in
 human lactoferrin

<400> 3
 Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15
 Gly Pro Pro Val Ser Cys Ile Lys Arg
 20 25

<210> 4
 <211> 23
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<220>
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 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18 40 in
 human lactoferrin

<400> 4
 Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg Gly Pro
 1 5 10 15
 Pro Val Ser Cys Ile Lys Arg
 20

<210> 5
 <211> 23
 <212> PRT
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<222> (3)..(20)

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<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18 40 in human lactoferrin

<400> 5

Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg Gly Pro
1 5 10 15

Pro Val Ser Cys Ile Lys Arg
20

<210> 6

<211> 14

<212> PRT

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<220>

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<222> (14)

<223> AMIDATION

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18 31 in human lactoferrin

<400> 6

Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
1 5 10

<210> 7

<211> 14

<212> PRT

<213> Artificial Sequence

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<222> (14)

<223> AMIDATION

<220>

<221> BINDING

<222> (5)..(9)

<223> LACTAM

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification

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of the sequence consisting of aa 18 31 in human
lactoferrin; a lactam is formed between aa 5 and 9

<400> 7
Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
1 5 10

<210> 8
<211> 20
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 12 31 of the protein
human lactoferrin

<400> 8
Val Ser Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met
1 5 10 15

Arg Lys Val Arg
20

<210> 9
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 12 18 of the protein
human lactoferrin

<400> 9
Val Ser Gln Pro Glu Ala Thr
1 5

<210> 10
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 13 19 of the protein
human lactoferrin

<400> 10
Ser Gln Pro Glu Ala Thr Lys
1 5

<210> 11
<211> 7
<212> PRT
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1003301-000175-SEQ Listing

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 14 20 of the protein human lactoferrin

<400> 11

Gln Pro Glu Ala Thr Lys Cys
1 5

<210> 12

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 15 21 of the protein human lactoferrin

<400> 12

Pro Glu Ala Thr Lys Cys Phe
1 5

<210> 13

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 22 of the protein human lactoferrin

<400> 13

Glu Ala Thr Lys Cys Phe Gln
1 5

<210> 14

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 17 23 of the protein human lactoferrin

<400> 14

Ala Thr Lys Cys Phe Gln Trp
1 5

<210> 15

<211> 7

<212> PRT

<213> Artificial Sequence

1003301-000175-SEQ Listing

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 18 24 of the protein human lactoferrin

<400> 15

Thr Lys Cys Phe Gln Trp Gln
1 5

<210> 16

<211> 7

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 19 25 of the protein human lactoferrin

<400> 16

Lys Cys Phe Gln Trp Gln Arg
1 5

<210> 17

<211> 7

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 20 26 of the protein human lactoferrin

<400> 17

Cys Phe Gln Trp Gln Arg Asn
1 5

<210> 18

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 21 27 of the protein human lactoferrin

<400> 18

Phe Gln Trp Gln Arg Asn Met
1 5

<210> 19

<211> 7

<212> PRT

<213> Artificial Sequence

1003301-000175-SEQ Listing

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 22 28 of the protein
 human lactoferrin

<400> 19
 Gln Trp Gln Arg Asn Met Arg
 1 5

<210> 20
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 23 29 of the protein
 human lactoferrin

<400> 20
 Trp Gln Arg Asn Met Arg Lys
 1 5

<210> 21
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 24 30 of the protein
 human lactoferrin

<400> 21
 Gln Arg Asn Met Arg Lys Val
 1 5

<210> 22
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 25 31 of the protein
 human lactoferrin

<400> 22
 Arg Asn Met Arg Lys Val Arg
 1 5

<210> 23
 <211> 8
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 23 of the protein human lactoferrin

<400> 23

Glu Ala Thr Lys Cys Phe Gln Trp
1 5

<210> 24

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 24 of the protein human lactoferrin

<400> 24

Glu Ala Thr Lys Cys Phe Gln Trp Gln
1 5

<210> 25

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 25 of the protein human lactoferrin

<400> 25

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg
1 5 10

<210> 26

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 26 of the protein human lactoferrin

<400> 26

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn
1 5 10

<210> 27

<211> 12

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<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 27 of the protein human lactoferrin

<400> 27

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met
1 5 10

<210> 28

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 28 of the protein human lactoferrin

<400> 28

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg
1 5 10

<210> 29

<211> 14

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 29 of the protein human lactoferrin

<400> 29

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys
1 5 10

<210> 30

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 30 of the protein human lactoferrin

<400> 30

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
1 5 10 15

<210> 31

<211> 16

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<212> PRT
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<220>
<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16 31 of the protein human lactoferrin

<400> 31
Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10 15

<210> 32
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 13 31 of the protein human lactoferrin

<400> 32
Ser Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg
1 5 10 15

Lys Val Arg

<210> 33
<211> 18
<212> PRT
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<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 14 31 of the protein human lactoferrin

<400> 33
Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys
1 5 10 15

Val Arg

<210> 34
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 15 31 of the protein human lactoferrin

<400> 34
Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
Page 11

1

5

10

15

Arg

<210> 35
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 17 31 of the protein
 human lactoferrin!

<400> 35
 Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

<210> 36
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 18 31 of the protein
 human lactoferrin

<400> 36
 Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 37
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 19 31 of the protein
 human lactoferrin

<400> 37
 Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 38
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 20 31 of the protein
 human lactoferrin

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human lactoferrin

<400> 38

Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 39

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 21 31 of the protein human lactoferrin

<400> 39

Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 40

<211> 10

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 22 31 of the protein human lactoferrin

<400> 40

Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 41

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 23 31 of the protein human lactoferrin

<400> 41

Trp Gln Arg Asn Met Arg Lys Val Arg
1 5

<210> 42

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 24 31 of the protein

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human lactoferrin

<400> 42

Gln Arg Asn Met Arg Lys Val Arg
1 5

<210> 43

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (2)..(10)

<223> Amino acids 2, 4, 6 and 10 are Xaa wherein Xaa = Gln, Lys, Asp, Asn or Val.

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 21 31 in human lactoferrin

<400> 43

Phe Xaa Trp Xaa Arg Xaa Met Arg Lys Xaa Arg
1 5 10

<210> 44

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to the sequence consisting of amino acids 21 31 in human lactoferrin

<400> 44

Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 45

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to the sequence consisting of aa 21 31 in human lactoferrin wherein one aa has been substituted

<400> 45

Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 46

<211> 12

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<212> PRT
 <213> Artificial Sequence
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 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted
 <400> 46
 Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 47
 <211> 12
 <212> PRT
 <213> Artificial Sequence

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 <222> (12)
 <223> AMIDATION

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 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<400> 47
 Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 48
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 19 31 in human lactoferrin
 wherein one aa has been substituted

<400> 48
 Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 49
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>

1003301-000175-SEQ Listing

<221> MOD_RES
<222> (1)
<223> ACETYLTATION

<220>
<221> MOD_RES
<222> (13)
<223> AMIDATION

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 19 31 in human lactoferrin
wherein one aa has been modified

<400> 49
Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 50
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 18 31 in human lactoferrin
wherein one aa has been substituted

<400> 50
Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 51
<211> 14
<212> PRT
<213> Artificial sequence

<220>
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<220>
<221> MOD_RES
<222> (14)
<223> AMIDATION

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 18 31 in human lactoferrin

wherein one aa has been substituted

<400> 51
Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

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<210> 52
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18 31 in
 human lactoferrin

 <400> 52
 Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
 1 5 10

<210> 53
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18 31 in
 human lactoferrin

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<400> 53
 Thr Lys Ala Phe Lys Trp Gln Arg Glu Met Arg Lys Val Arg
 1 5 10

<210> 54
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of aa 18 31 in human
 lactoferrin; a lactam is formed between aa 5 and 9

<220>
 <221> BINDING
 <222> (5)..(9)
 <223> LACTAM

<400> 54
 Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
 1 5 10

<210> 55

1003301-000175-SEQ Listing

<211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of aa 18 31 in human
 lactoferrin; a lactam is formed between aa 5 and 9

 <220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLATION

 <220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

 <220>
 <221> BINDING
 <222> (5)..(9)
 <223> LACTAM

 <400> 55
 Thr Lys Ala Phe Lys Trp Gln Arg Glu Met Arg Lys Val Arg
 1 5 10

 <210> 56
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18 31 in
 human lactoferrin

 <400> 56
 Thr Lys Lys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

 <210> 57
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18 31 in
 human lactoferrin

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 <222> (1)
 <223> ACETYLATION

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1003301-000175-SEQ Listing

<223> AMIDATION

<400> 57

Thr Lys Lys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 58

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18 31 in human lactoferrin

<400> 58

Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
1 5 10

<210> 59

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18 31 in human lactoferrin

<220>

<221> MOD_RES

<222> (1)

<223> ACETYLTATION

<220>

<221> MOD_RES

<222> (14)

<223> AMIDATION

<400> 59

Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
1 5 10

<210> 60

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresp. to a modification of the seq. consisting of aa 18 31 in human lactoferrin; lactams formed between aa 3 and 7, and 9 and 13

<220>

<221> BINDING

<222> (3)..(7)

<223> LACTAM

1003301-000175-SEQ Listing

<220>
 <221> BINDING
 <222> (9)..(13)
 <223> LACTAM

<400> 60
 Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
 1 5 10

<210> 61
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresp. to a modification of the seq. consisting of aa 18 31 in human lactoferrin; lactams formed between aa 3 and 7, and 9 and 13

<220>
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 <222> (1)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<220>
 <221> BINDING
 <222> (3)..(7)
 <223> LACTAM

<220>
 <221> BINDING
 <222> (9)..(13)
 <223> LACTAM

<400> 61
 Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
 1 5 10

<210> 62
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to the sequence consisting of amino acids 17 31 in human lactoferrin

<400> 62
 Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

<210> 63
 <211> 15

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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 17 31 in human lactoferrin

<220>
<221> MOD_RES
<222> (1)
<223> ACETYLTATION

<220>
<221> MOD_RES
<222> (15)
<223> AMIDATION

<400> 63
Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10 15

<210> 64
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to the sequence consisting of amino acids 16 31 in human lactoferrin

<400> 64
Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10 15

<210> 65
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 16 31 in human lactoferrin

<220>
<221> MOD_RES
<222> (1)
<223> ACETYLTATION

<220>
<221> MOD_RES
<222> (16)
<223> AMIDATION

<400> 65
Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10 15

1003301-000175-SEQ Listing

<210> 66
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to the sequence
 consisting of amino acids 15 31 in human
 lactoferrin

<400> 66
 Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
 1 5 10 15
 Arg

<210> 67
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 15 31 in
 human lactoferrin

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (17)
 <223> AMIDATION

<400> 67
 Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
 1 5 10 15
 Arg

<210> 68
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<400> 68
 Ala Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

1003301-000175-SEQ Listing

<210> 69

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 69

Cys Ala Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 70

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 70

Cys Phe Ala Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 71

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 71

Cys Phe Gln Ala Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 72

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin

wherein one aa has been substituted

<400> 72

Cys Phe Gln Trp Ala Arg Asn Met Arg Lys Val Arg
Page 23

1

5

<210> 73
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been modified

<400> 73
Cys Phe Gln Trp Gln Ala Asn Met Arg Lys Val Arg
1 5 10

<210> 74
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 74
Cys Phe Gln Trp Gln Arg Ala Met Arg Lys Val Arg
1 5 10

<210> 75
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 75
Cys Phe Gln Trp Gln Arg Asn Ala Arg Lys Val Arg
1 5 10

<210> 76
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 76

1003301-000175-SEQ Listing

Cys Phe Gln Trp Gln Arg Asn Met Ala Lys Val Arg
 1 5 10

<210> 77
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<400> 77
 Cys Phe Gln Trp Gln Arg Asn Met Arg Ala Val Arg
 1 5 10

<210> 78
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<400> 78
 Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Ala Arg
 1 5 10

<210> 79
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<400> 79
 Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Ala
 1 5 10

<210> 80
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

1003301-000175-SEQ Listing

<400> 80

Cys Phe Gln Leu Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 81

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 81

Cys Phe Gln Trp Gln Lys Asn Met Arg Lys Val Arg
1 5 10

<210> 82

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 82

Cys Phe Gln Trp Gln Arg Asn Leu Arg Lys Val Arg
1 5 10

<210> 83

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 83

Cys Phe Gln Trp Gln Arg Asn Met Lys Lys Val Arg
1 5 10

<210> 84

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

1003301-000175-SEQ Listing

<400> 84
Cys Phe Gln Trp Glu Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 85
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20 31 in human lactoferrin
wherein one aa has been substituted

<400> 85
Cys Phe Gln Trp Gln Glu Asn Met Arg Lys Val Arg
1 5 10

<210> 86
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20 31 in human lactoferrin
wherein one aa has been substituted

<400> 86
Cys Phe Gln Trp Gln Arg Glu Met Arg Lys Val Arg
1 5 10

<210> 87
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20 31 in human lactoferrin
wherein one aa has been substituted

<220>
<221> MISC_FEATURE
<222> (5)
<223> Amino acid 5 is Xaa wherein Xaa = Orn.

<400> 87
Cys Phe Gln Trp Xaa Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 88
<211> 12
<212> PRT
<213> Artificial Sequence

1003301-000175-SEQ Listing

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<220>
 <221> MISC_FEATURE
 <222> (5)
 <223> Amino acid 5 is Xaa wherein Xaa = Nle.

<400> 88
 Cys Phe Gln Trp Xaa Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 89
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<220>
 <221> MISC_FEATURE
 <222> (7)
 <223> Amino acid 7 is Xaa wherein Xaa = Orn.

<400> 89
 Cys Phe Gln Trp Gln Arg Xaa Met Arg Lys Val Arg
 1 5 10

<210> 90
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20 31 in human lactoferrin
 wherein one aa has been substituted

<220>
 <221> MISC_FEATURE
 <222> (7)
 <223> Amino acid 7 is Xaa wherein Xaa = Nle.

<400> 90
 Cys Phe Gln Trp Gln Arg Xaa Met Arg Lys Val Arg
 1 5 10

<210> 91
 <211> 12
 <212> PRT

1003301-000175-SEQ Listing

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein one aa has been substituted

<400> 91

Cys Phe Gln Trp Lys Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 92

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresp. to a modification of the sequence consisting of aa 18 31 in human lactoferrin

<220>

<221> MOD_RES

<222> (1)

<223> ACETYLATION

<220>

<221> MOD_RES

<222> (12)

<223> AMIDATION

<220>

<221> BINDING

<222> (5)..(9)

<400> 92

Cys Phe Gln Trp Lys Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 93

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein some aa have been substituted

<400> 93

Cys Phe Gln Trp Lys Arg Ala Met Arg Lys Val Arg
1 5 10

<210> 94

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein some aa have been substituted

<400> 94

Cys Phe Ala Trp Lys Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 95

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein some aa have been substituted

<400> 95

Cys Phe Ala Trp Gln Arg Ala Met Arg Lys Val Arg
1 5 10

<210> 96

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20 31 in human lactoferrin wherein some aa have been substituted

<400> 96

Cys Phe Gln Leu Lys Lys Asn Met Lys Lys Val Arg
1 5 10

<210> 97

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresp. to a modification of the sequence consisting of aa 20 31 in human lactoferrin

<220>

<221> BINDING

<222> (5)..(9)

<400> 97

Cys Phe Ala Leu Lys Lys Ala Met Lys Lys Val Arg
1 5 10

1003301-000175-SEQ Listing

<210> 98
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or artificial origin, corresp. to a modification of the sequence consisting of aa 18 31 in human lactoferrin

<220>
 <221> BINDING
 <222> (5)..(9)

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<400> 98
 Thr Lys Lys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 99
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or artificial origin, corresp. to a modification of the sequence consisting of aa 20 31 in human lactoferrin

<220>
 <221> PEPTIDE
 <222> (3)
 <223> Amino acid 3 is Xaa wherein Xaa = Gln or Ala.

<220>
 <221> PEPTIDE
 <222> (4)
 <223> Amino acid 4 is Xaa wherein Xaa = Trp or Leu.

<220>
 <221> PEPTIDE
 <222> (5)
 <223> Amino acid 5 is Xaa wherein Xaa = Gln, Lys, Orn, Ala or Nle.

<220>
 <221> PEPTIDE
 <222> (6)
 <223> Amino acid 6 is Xaa wherein Xaa = Arg, Lys or Ala.

<220>
 <221> PEPTIDE
 <222> (7)

1003301-000175-SEQ Listing

<223> Amino acid 7 is Xaa wherein Xaa = Asn, Orn, Ala or Nle.

<220>

<221> PEPTIDE

<222> (8)

<223> Amino acid 8 is Xaa wherein Xaa = Met or Leu.

<220>

<221> PEPTIDE

<222> (9)

<223> Amino acid 9 is Xaa wherein Xaa = Arg or Lys.

<220>

<221> BINDING

<222> (5)..(9)

<400> 99

Cys Phe Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Val Arg
1 5 10

<210> 100

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:a fragment of human lactoferrin consisting of the amino acids in positions 12 40

<400> 100

Val Ser Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met
1 5 10 15

Arg Lys Val Arg Gly Pro Pro Val Ser Cys Ile Lys Arg
20 25

<210> 101

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> of natural or artificial origin, corresponding to modification of the sequence consisting of amino acids 16 40 in human lactoferrin of SEQ ID NO. 2

<400> 101

Gly Pro Pro Val Ser Cys Ile Lys Arg
1 5

<210> 102

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> of natural or artificial origin, not a modification of the sequence consisting of amino acids 18 31 in human lactoferrin of SEQ ID NO. 99

<400> 102

Glu Ala Thr Lys

